CATHY WANG

LinkedIn | Github

M.A.Sc in Electrical and Computer Engineering | B.A.Sc in Nanotechnology Engineering

CONTACT

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EDUCATION

M.A.SC. ELECTRICAL & COMPUTER ENGINEERING
University of Waterloo, ON
May 2018 – Apr 2020
Research Area: numerical modelling of the electron transport and decoherence in quantum opto-electronic devices
Supervisor: Prof. Dayan Ban
Cumulative Average: 89.80

B.A.SC. NANOTECHNOLOGY ENGINEERING
University of Waterloo, ON
Sept 2013 – Apr 2018
Cumulative Average: 84.69

SELECTED COURSES

Math: Advanced Calculus, Linear Algebra, Probability and Statistics
Materials: Surfaces and Interfaces, Structure and Properties of Matter: From Nanoscale to Bulk, Intro to Materials Science and Engineering, Continuum Mechanics
Electronics: Optoelectronic Devices, Electronic Circuits and Integration, Quantum Mechanics
Chemistry and Biology: Biochemistry, Organic Chemistry, Chemical Principles

TECH STACK

Programming Languages: extensive knowledge of MATLAB, working knowledge of Python, C/C++, HTML/CSS
Other: Overleaf/Latex, Microsoft Suite, Github, Adobe Photoshop

SUMMARY OF QUALIFICATIONS

- **3+ years of software development** for quantum physics and semiconductor applications using **MATLAB**
- Excellent **written communication skills** developed through academic career, frequently wrote reports documenting my work during Master's
- Good **verbal communication skills** acquired through presenting my work at conferences and group meetings
- Strong **problem-solving**, **self-learning**, and **independent work skills** while also functioning as a **team player**

WORK EXPERIENCE

COMPUTATIONAL SCIENTIST *May 2019 – Aug 2019*
National Research Council, Ottawa, ON

- Improved a senior scientist's MATLAB code in terms of speed (6x faster for one subroutine), and found typos in the code
- Proven ability to juggle multiple tasks with attention to detail – during this time I also completed a poster submission for the international conference Infrared THz Quantum Workshop (code and poster are available here)

RESEARCH ASSISTANT IN PROF. DAYAN BAN'S GROUP *Jan-Aug 2017,*
University of Waterloo, Waterloo, ON *Sept 2015 – Dec 2015*

- Development of theory and simulation code in MATLAB for the transport dynamics in THz quantum cascade lasers
- Characterization of quantum cascade lasers; worked with cryogenic systems, oscilloscopes, pulse generators, light-current-voltage measurements

RESEARCH ASSISTANT IN PROF. DOYLE'S GROUP @ MIT *Jan 2016 – Apr 2016*
Massachusetts Institute of Technology, Cambridge, MA

- Worked with a graduate student to develop a model using COMSOL to describe the deformation behavior of hydrogels (link to publication)

RESEARCH ASSISTANT IN PROF. SUN'S GROUP *Jan 2015 – Apr 2015,*
University of Western Ontario, London, ON *June 2014 – Aug 2014*

- Fabricated and characterized nanomaterials for use in Li-ion and Li-S batteries

COMMUNICATION

- Gave a guest lecture in ECE 672 Optoelectronic Devices during the term Winter 2019
- Provided one-on-one mentorship and support for new members of Prof. Ban's research group to quickly get involved in quantum physics simulations

AWARDS

Ontario Graduate Scholarship	*May 2018 – Apr 2019*
President's Graduate Scholarship	*May 2018 – Apr 2019*
Waterloo Institute of Nanotechnology Nanofellowship	*Sept 2018 – Apr 2019*
Dean's Accelerated Masters Award	*2017*
NSERC Undergraduate Student Research Award	*2017, 2015*
President's International Experience Award	*2015*
President's Research Award	*2015*

PUBLICATIONS AND CONFERENCE POSTER PRESENTATIONS

- **Wang, K.X.**, Hughes, S., and Ban, D. (2019). Influence of electron-phonon scattering in quantum dot cascade lasers. Infrared Terahertz Quantum Workshop (California USA), September 15-20, 2019.
- Chen, L., **Wang, K.X.**, and Doyle, P. (2017) Effect of internal architecture on microgel deformation in microfluidic constrictions. Soft Matter. 13: 1920-1928.
- Wen, B., Xu, C., Wang, S., **Wang, K.X**., Tam, A., Wasilewski, Z., and Ban, D. (2018) Dual lasing channel quantum cascade laser based on scattering-assisted injection design. Optics express, 26(7), 9194-9204.
- Wen, B., Xu, C., Wang, S., **Wang, K.X.**, He, X., Wasilewski, Z., and Ban, D. (2017) Lasing channels switching in dual color scattering assisted THz quantum-cascade laser. The 14th International Conference on Intersubband Transitions in Quantum Wells (Singapore), September 10-15, 2017.
- **Wang, K.X.**, Wen, B., and Ban, D. (2017) Effect of dopant position on impurity scattering time and optical gain in terahertz quantum cascade lasers. The 18th Canadian Semiconductor Science and Technology Conference (Waterloo, Canada), August 20-24, 2017.